

REMARKS

Claims 1-17 are currently pending in connection with the present application. Claim 1 is amended for grammatical clarification. Claims 1, 12 and 15 are independent claims. Reconsideration and allowance are respectfully requested in view of the amendments and the following remarks.

PRIOR ART REJECTIONS

35 U.S.C. §102 Akram Rejection

Claims 12 and 14 stand rejected under 35 U.S.C. §102(b) as being anticipated by Akram et al. (U.S. Patent No. 6,082,365). Applicant respectfully traverses this rejection.

Without acquiescing to the Examiner's other rejection reasons with regard to claim 12, the Examiner alleges that Akram et al. teaches a first package is electrically connected to a second package, wherein "connecting pads 337 are connected to the conductive patterns on 226 via 356." Akram et al. teaches that "[b]ond pads 337 are electrically connected to ball pads 238 through the conductive solder balls 354." Column 9, lines 62-63, and FIG. 4. As it is well known in the art, solder balls are globs of solder used to connect a printed circuit board with a chip package, or connect a chip package with another chip package. The present application, paragraphs [0005-0006], disclose the type of stack package taught in Akram et al. The present application also discloses that this type of package has a large package size and large mounting density.

Claim 12 of the present application recites that connecting pads under a package are electrically connected to conductive patterns in a flexible cable. Therefore, solder balls are not necessary. Akram et al. teaches that solder balls 354 are required to electrically connect bond

pads 337 with ball pads 238. Akram et al. fails to teach or suggest connecting pads in a package to a flexible cable having a conductive pattern, as recited in claim 12.

Accordingly, for at least the reasons given above, claim 12 is patentable over Akram et al. Dependent claim 14 is also patentable for depending on an allowable base claim.

35 U.S.C. §103 Akram/Bai Rejection

Claims 1-4, 7, 9, 11 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Akram et al. (U.S. Patent No. 6,082,365), in view of Bai et al. (U.S. Patent No. 6,326,700). Applicants respectfully traverse this rejection.

The Examiner alleges that Akram et al. discloses a substrate (FIG. 4, 330), and the Examiner further alleges that a “support” is essentially a substrate. Applicants disagree.

Akram et al. discloses that a “support” is typically formed of any polymeric or non-conductive material. Column 6, lines 64-66. Contrary to the Examiner’s position, a support 230/330 of Akram et al. **cannot** be a substrate. A common definition for “substrate” as defined by www.semiconductor-technology.com is:

Substrate refers the base or supporting materials to which additional layers or materials are applied. The substrate is part of the wafer from which dies are cut, and is the circuits electrical grounding. (Emphasis added.)

A “support” formed of polymeric or non-conductive cannot be a substrate having a plurality of terminal pads and a plurality of connecting pads formed on a second face thereof. In other words, a polymeric or non-conductive support cannot be formed to have terminal pads and a plurality of connecting pads, for example, electrical connection. A person of ordinary skills knows that terminal pads and a plurality of connecting pads are not formed on such a support.

In addition, as remarked above with respect to the rejection against claim 12, Akram et al. fails to teach or suggest a flexible cable having a conductive pattern, the flexible cables coupling packages by the conductive patterns, as recited in claim 1.

For at least the reasons given above, claim 1 is patentable over the Examiner's cited reference. Dependent claims 2-3, 7, 9, 11, and 16 are also patentable for depending on a patentable base claim.

35 U.S.C. §103 Akram/Bai/Taniguchi Rejection

Claims 5, 6 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Akram et al. and Bai, in view of Taniguchi et al. (U.S. Patent No. 6,388,333). Applicants respectfully traverse this rejection.

As remarked above, neither individually nor in combination does Akram et al. and Bai teach or suggest all the features of independent claim 1. For at least the reasons given above, Applicants submit that claims 5, 6 and 17 are patentable for depending on patentable independent claim 1. In addition, Taniguchi fails to cure the deficiencies discussed above with respect to Akram et al. and Bai.

35 U.S.C. §103 Akram/Bai/Takashima Rejection

Claim 8 stand rejected under 35 U.S.C. §103 as being unpatentable over Akram et al. and Bai in view of Takashima et al. (U.S. Patent No. 6,160,313).

As remarked above, neither individually nor in combination does Akram et al. and Bai teach or suggest all the features of independent claim 1. For at least the reasons given above, Applicants submit that claim 8 is patentable for depending on patentable independent claim 1. In

addition, Taniguchi fails to cure the deficiencies discussed above with respect to Akram et al. and Bai.

35 U.S.C. §103 Akram/Bai/Cady Rejection

Claim 10 stand rejected under 35 U.S.C. §103 as being unpatentable over Akram et al. and Bai in view of Cady. Applicants respectfully traverse this rejection.

As remarked above, neither individually nor in combination does Akram et al. and Bai teach or suggest all the features of independent claim 1. For at least the reasons given above, Applicants submit that claim 10 is patentable for depending on patentable independent claim 1. In addition, Cady fails to cure the deficiencies discussed above with respect to Akram et al. and Bai.

35 U.S.C. §103 Akram/ Cady Rejection

Claims 15-17 stand rejected under 35 U.S.C. §103 as being unpatentable over Akram et al. in view of Cady. Applicants respectfully traverse this rejection.

Claim 15, similar to claim 12, recites that connecting pads under a package are electrically connected to conductive patterns in a flexible cable. In other words, connecting pads in the package are directly connected to “conductive patters” in the flexible cable. Therefore, solder balls are not necessary. It is well known, that a “conductive pattern” is a pre-designed, complex wiring design. Akram et al. teaches that solder balls 354 are required to electrically connect bond pads 337 with ball pads 238. Akram et al. fails to teach or suggest connecting pads in a package to a flexible cable having a conductive pattern, as recited in claim 15.

Accordingly, for at least the reasons given above, claim 15 is patentable over Akram et al. in view of Cady. In addition, Cady fails to cure the deficiency of Akram et al.

Claims 16 and 17 are also patentable for respectively depending on an allowable base claim.

<remainder of page intentionally left blank>

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of claims 1-17 in connection with the present application is earnestly solicited.

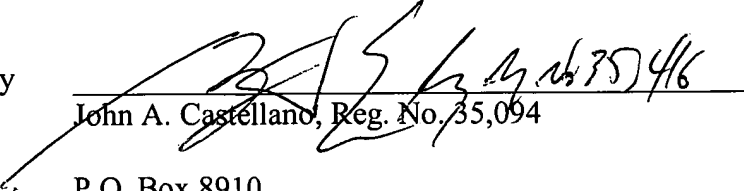
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John A. Castellano at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By


John A. Castellano, Reg. No. 35,094

P.O. Box 8910
Reston, Virginia 20195
(703) 668-8000

JAC/LYP/cm